

CLAIMS

1. A protein having the amino acid sequence shown in SEQ ID NO: 1 in SEQUENCE LISTING, or a protein having the same amino acid sequence as shown in SEQ ID NO:1 except that one or more amino acids are substituted or deleted, or
5 that one or more amino acids are inserted or added, which has an activity to transfer *N*-acetylglucosamine to a non-reducing terminal of Gal β 1-4Glc or Gal β 1-4GlcNAc group through β 1,3-linkage.

2. The protein according to claim 1, which has the amino acid sequence shown in SEQ ID NO: 3 in SEQUENCE LISTING, or a protein having the same amino acid
10 sequence as shown in SEQ ID NO:1 except that one or more amino acids are substituted or deleted, or that one or more amino acids are inserted or added.

3. The protein according to claim 1 or 2, wherein said protein has an amino acid sequence having a homology of not less than 70% to said amino acid sequence shown in SEQ ID NO:1 or 3.

4. The protein according to claim 3, wherein said protein has an amino acid
15 sequence having a homology of not less than 90% to said amino acid sequence shown in SEQ ID NO:1 or 3.

5. The protein according to claim 4, wherein said protein has an amino acid sequence having the same amino acid sequence as shown in SEQ ID NO:1 or 3
20 except that one or several amino acids are substituted or deleted, or that one or several amino acids are inserted or added.

6. The protein according to claim 5, which has the amino acid sequence shown in SEQ ID NO:3.

7. A protein comprising a region having the amino acid sequence recited in any
25 one of claims 1 to 6, which has an activity to transfer *N*-acetylglucosamine to a non-reducing terminal of Gal β 1-4Glc or Gal β 1-4GlcNAc group through β 1,3-linkage.

8. A nucleic acid coding for said protein according to any one of claims 1 to 7.

9. The nucleic acid according to claim 8, which hybridizes with the nucleic acid having the nucleotide sequence shown in SEQ ID NO:2 or 4 under stringent conditions.

10. The nucleic acid according to claim 9, which has the nucleotide sequence shown in SEQ ID NO:2 or 4.

11. A recombinant vector containing the nucleic acid according to any one of claims 8 to 10, which can express said nucleic acid in a host cell.

12. A cell into which said nucleic acid according to any one of claims 8 to 10 is introduced, which expresses said nucleic acid.

13. A nucleic acid for measurement of said nucleic acid according to any one of claims 8 to 10, which specifically hybridizes with said nucleic acid according to any one of claims 8 to 10.

14. The nucleic acid for measurement of nucleic acid, according to claim 13, which has a sequence complementary to a part of said nucleic acid of claim 10.

15. The nucleic acid for measurement of nucleic acid, according to claim 13 or 14, which is a probe or a primer.

16. The nucleic acid for measurement of nucleic acid, according to claim 15, which has not less than 15 bases.

17. The nucleic acid for measurement of nucleic acid, according to any one of claims 13 to 16, which is used for diagnosis of a cancer and/or tumor.

18. The nucleic acid for measurement of nucleic acid, according to claim 17, which is used for diagnosis of a cancer and/or tumor of a digestive organ.

19. The nucleic acid for measurement of nucleic acid, according to claim 18, which is used for diagnosis of colon cancer.

20. A method for diagnosis of a cancer and/or tumor, comprising determining the amount of said protein according to claim 6 or determining the expression amount of the gene coding for said protein, in (a) sample cell(s) separated from body.

21. The method according to claim 20, wherein said sample cell(s) is(are) originated from a digestive organ, and wherein said method is for diagnosis of a cancer and/or tumor of the digestive organ.

22. The method according to claim 21, wherein said sample cell(s) is(are) originated from colon, and wherein said method is for diagnosis of colon cancer.

23. A method for measuring said nucleic acid according to any one of claims 8 to 10, comprising making contact between said nucleic acid for measurement of nucleic acid, according to any one of claims 13 to 16, and said nucleic acid according to any one of claims 6 to 8 so as to hybridize them, and measuring the hybridized nucleic acid.

24. A method for measuring said nucleic acid according to any one of claims 8 to 10, comprising carrying out a nucleic acid-amplification method using as primers a pair of nucleic acids for measurement of nucleic acid, according to any one of claims 13 to 16, and using as a template said nucleic acid according to any one of claims 8 to 10, and measuring amplification product.

25. The method for diagnosis of a cancer and/or tumor according to any one of claims 20 to 22, comprising making contact between said nucleic acid for measurement of nucleic acid, according to any one of claims 13 to 16, and mRNA transcribed from the gene of said protein according to claim 6 or cDNA generated by using said mRNA as a template so as to hybridize them, and measuring the hybridized nucleic acid, so as to measure the expression amount of the gene of said protein according to claim 6.

26. The method for diagnosis of a cancer and/or tumor according to any one of claims 20 to 22, comprising carrying out a nucleic acid-amplification method using as primers a pair of nucleic acids for measurement of nucleic acid, according to any one of claims 13 to 16, and using as a template the mRNA transcribed from the gene of said protein according to claim 6 or cDNA generated by using said mRNA, and

measuring amplification product, so as to measure the expression amount of the gene of said protein according to claim 6.

27. Use of said nucleic acid for measurement of nucleic acid, according to any one of claims 13 to 16, for the production of nucleic acid for measurement of nucleic acid according to any one of claims 8 to 10.

28. Use of said nucleic acid for measurement of nucleic acid, according to any one of claims 17 to 19, for the production of diagnostic reagent for a cancer and/or tumor.

29. The use according to claim 28, wherein said cancer and/or tumor is a cancer and/or tumor of a digestive organ.

30. The use according to claim 29, wherein said cancer and/or tumor of a digestive organ is colon cancer.